Foreword

National Oceanic and Atmospheric Administration

U.S. DEPARTMENT OF COMMERCE

NOAA Fisheries Service
Northeast Cooperative Research Partners Program

The National Marine Fisheries Service (NOAA Fisheries Service), Northeast Cooperative Research Partners Program (NCRPP) was initiated in 1999. The goals of this program are to enhance the data upon which fishery management decisions are made as well as to improve communication and collaboration among commercial fishery participants, scientists and fishery managers. NOAA Fisheries Service works in close collaboration with the New England Fishery Management Council's Research Steering Committee to set research priorities to meet management information needs.

Fishery management is, by nature, a multiple year endeavor which requires a time series of fishery dependent and independent information. Additionally, there are needs for immediate short-term biological, oceanographic, social, economic and habitat information to help resolve fishery management issues. Thus, the program established two avenues to pursue cooperative research through longer and short-term projects. First, short-term research projects are funded annually through competitive contracts. Second, three longer-term collaborative research projects were developed. These projects include: 1) a pilot study fleet (fishery dependent data); 2) a pilot industry based survey (fishery independent data); and 3) groundfish tagging (stock structure, movements and mixing, and biological data).

> First, a number of short-term research projects have been developed to work primarily on commercial fishing gear modifications, improve selectivity of catch on directed species, reduce bycatch, and study habitat reactions to mobile and fixed fishing gear.
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> Second, two cooperative research fleets have been established to collect detailed fishery dependent and independent information from commercial fishing vessels. The original concept, developed by the Canadians, referred to these as "sentinel fleets". In the New England groundfish setting it is more appropriate to consider two industry research fleets. A pilot industry-based survey fleet (fishery independent) and a pilot commercial study fleet (fishery dependent) have been developed.
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> Additionally, extensive tagging programs are being conducted on a number of groundfish species to collect information on migrations and movements of fish, identify localized or subregional stocks, and collect biological and demographic information on these species.

For further information on the Cooperative Research Partners Programs please contact:

National Marine Fisheries Service (NOAA Fisheries Service)
Northeast Cooperative Research Partners Program

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www.nero.noaa.gov/StateFedOff/coopresearch/

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Final Report: Developing a raised footrope whiting net in the Gulf of Maine that meets conservation goals for size selectivity and bycatch.

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Developing a raised footrope whiting net in the Gulf of Maine that meets conservation goals for size selectivity and bycatch.

1. Project Summary and Statement of Research Question:

1. Project Summary

The work done under the current NMFS grant built on the successes in 1999 and essentially completed development of a net that better targets whiting by meeting the double criteria of conservation of the whiting resource and minimization of bycatch of regulated species. Through a series of tests of cod end mesh, raised footrope configurations with and without a roller frame, taking the configuration with the least bycatch from each test, the current research developed a net that met the criteria. This net is a raised footrope sweepless trawl with dropper chains that has a 50 mm bar space Nordmore style grate and 2-1/2 inch stretched mesh cod end. Whiting length frequency retained with this net shows few whiting retained below 22 cm, or roughly size at first maturity. The percentage of bycatch of regulated species is less than 5% for all but a few tows. Continued work during the summer and fall of 2002 with the fishermen involved ensured that proper design and rigging instructions could be developed that would be easily followed, fished and enforced. Sixteen tows with 2-1/2 inch cod end mesh paired with tows with 3 inch cod end mesh conducted during the fall of 2002 showed little difference in length frequency of whiting or in bycatch of regulated species between the two cod ends.

With the completion of this gear development work, Maine worked with the New England Fishery Management Council's Whiting Monitoring Committee on a framework adjustment to create this fishery. This framework adjustment, FW 38, is very specific as to what types of gear may be used in the fishery, ie a raised footrope net with a 50 mm bar space grate and a 2-1/2 inch diamond mesh cod end and defines an area where and a specific time period when the fishery can occur (See Appendix I).

There was a very large whiting fishery along the coast during the 1960's and early 70's and a reasonable fishery during the 1980's, there were little landings during the late 1980's and early 1990's. In 1994, an innovation that helped reduce finfish bycatch in the shrimp fishery, the Nordmore grate, was modified to allow a slightly larger size whiting through the grate, yet keep the bycatch of regulated species down below 5%. The grate bar spacing was widened to 40 mm from 25 mm and testing at sea showed good success at catching whiting and keeping bycatch low. There was no whiting management plan in place at that time and the size fish targeted by this gear, 1 ¾" mesh net and 40 mm bar space grate, was salable in the Spanish whiting market if properly handled on deck to preserve quality. This fishery existed as an experimental fishery under NMFS regulation under the proviso that it proves that its bycatch is less than 5%. Data between sea sampling and logbooks differed as to bycatch percentage. As this work progressed, Amendment 12 to the Northeast Multispecies Fishery Management Plan (MSFMP) was approved in 1999, creating a management plan for the whiting fishery. This plan limited the whiting fishery to only two locations in the Gulf of Maine, Area 1 off Cape Ann, Massachusetts, and Area 2 outside Jeffrey's Ledge. Neither is accessible to the inshore Maine whiting fleet. Submitted in May, 2000, Framework Adjustment 35 to the Northeast MSFMP has allowed an additional whiting fishery north of Cape Cod through use of a raised footrope net. This area has recently been expanded, but is also inaccessible to the Maine fleet. Thus the traditional Maine whiting fishery has been systematically regulated out of existence.

Understandably, after several years of issuing experimental fishing permits for the Maine fishery to prove its worth, the NMFS in 2000 was reluctant to continue to issue experimental fishery permits to sustain the Maine fishery with the whiting grate. Maine fishers hoped that a whiting fishery closer to Maine could be created through another framework adjustment to reestablish this traditional fishery. In order to do so in good conscience, Maine fishers wanted to use the best possible combination of attributes in the net that would meet the dual criteria of low bycatch and conservative size selection for whiting. Amendment 12 to the MSFMP had established a series of increasing limits on daily catch based on decreasing cod end mesh size, which was aimed at limiting the mortality of pre spawning fish.

With a grant from the Maine Fishing Industry Development Program, we continued to work to bring the fishery into compliance with the intent of the whiting fishery management plan to reduce the fishing mortality on juvenile (pre-spawning) whiting. To these ends we investigated increased mesh sizes in the cod end, the addition of a Nordmore style grate into the extension with varying bar spacings and the addition of a modified Massachusetts-style raised footrope to the trawl. Our work met with good success in reducing the catch of small whiting and the bycatch of regulated species. The bycatch of regulated species is calculated as the ratio of the weight of regulated species and the total weight of fish caught. Thus when you greatly reduce the total weight of fish caught by

increasing the cod end mesh to release the small whiting, you run the risk of increasing the percent of bycatch of regulated species, even if you have effectively reduced their actual bycatch. This work ended with a series of trials with a raised footrope that was designed to reduce the bycatch of flatfish and thus bring the bycatch percentage back below 5%. The trials were promising, but not complete enough to be sufficient to recommend their use in the fishery. Also, the video footage that we felt was necessary to document what was happening with the gear while under tow was not clear enough. The current work has addressed these issues and cleared the way for the creation of a whiting fishery along the Maine coast through a framework adjustment (FW 38) to the MSFMP.